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UNDERSTANDING THE TRANSITION TO WORK FOR FIRST DEGREE UNIVERSITY GRADUATES IN PORTUGAL: THE CASE OF THE UNIVERSITY OF ÉVORA

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Abstract/Resumo:
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Palavras-chave/Keyword: Duration Models, Graduates, Labour Market, Universities.

Classificação JEL/JEL Classification: J64; I23; C41

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Abstract

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1. Introduction

A traditional way of looking at the importance of universities assumes that these are sources of many positive effects from the point of view of the inputs, i.e. from a demand side perspective. In accordance to this perspective, the importance of a university can be measured by its multiplier economic effects, at a regional or national level (Thomas, 1995; Brown & Heaney, 1997). Plainly, this perspective can be complemented with the importance of the many outputs that result from the functioning of a university (Blackwell et al., 2002), in particular the level of knowledge that graduates acquire in their university degrees in order to face (a possible entrance in) the labour market (Drucker & Godstein 2007; Wilton (2008); see also Beeson & Montgomery, 1993).

As a matter of fact, in the assessment of the quality or performance of universities, the issues associated with the time to employment of their graduates are supposed to gain importance after developments to be made in the legal setup of universities. Moreover, in the last few years, and particularly in the period of time that we analyse in this paper, it has been increasingly difficult for first-degree graduates to find their first job, following the worsening of the labour market conditions in general. According to Conselho Nacional de Avaliação do Ensino Superior (2004), the unemployment rate for new university graduates in Portugal was 2.2% in 2001 and 4.9% in 2003. Taking these figures into account, the importance and significance of the analysis of the process of transition into labour market for university graduates are to be increased.

The relevance of the issues related to the employability of the university graduates is clearly being also acknowledged by the agenda of institutions in charge of the Bologna process. Just as an illustration of this fact, the London Communiqué of May 2007 of the Ministers responsible for Higher Education in the countries participating in the Bologna Process, called the attention for: “Building on our rich and diverse European cultural heritage, we are developing an EHEA based on institutional autonomy, academic freedom, equal opportunities and democratic principles that will facilitate mobility, *increase employability* and strengthen Europe's attractiveness and competitiveness.” [italics added]

In the particular case of a small university, such as it is the case of the University of Évora, that is located in an economically depressed region, the employability of its graduates relates to the social cohesion, which is an essential matter on the Bologna process. For instance, in the communiqué of the Conference of Ministers responsible for Higher Education in Berlin on 19 September 2003,[1] “Ministers reaffirm the importance of the social dimension of the Bologna Process. The need to increase competitiveness must be balanced with the objective of improving the social characteristics of the

[1] Realising the European Higher Education Area. (see http://www.bologna-berlin2003.de/pdf/Communique1.pdf)

European Higher Education Area, aiming at *strengthening social cohesion* and reducing social and gender inequalities both at national and at European level." [italics added].

Having said that, the paper thus analyses the factors that reveal to be explanatory of the time spent by first degree students of a small university in Portugal, the University of Évora, in order to enter the labour market. We employ a sample of 767 students and estimate discrete-time hazard models, considering several different specifications, with and no control for unobserved heterogeneity.

The results reveal the existence of significant differences among the several subject areas of graduation, with economics, management and engineering being the most successful subjects. Moreover, the results highlight the importance of the final mark students obtain in the course to their success in the labour market. We also conclude that younger graduates seem to be in a disadvantageous situation in relation to more mature graduates, but that there are no significant differences between male and female students.

The rest of the paper is structured as follows. The review of the relevant literature is done in Section 2. The data and the methodology used in the paper are presented in Section 3. This is followed by the analysis of the results, which is done in Section 4. Section 5 concludes by presenting the main results and some of possible avenues for further work.

2. Literature review

The transition to employment of university graduates is an issue that has deserved some attention from some recent literature. This attention has risen given the increase in unemployment that characterizes many economies. In some of these economies, namely Portugal, the unemployment rate of university graduates is at worrying levels (see also the case of Italy in Pozzoli, 2009). In this sense, it is of no surprise that authors turn their attention to the analysis of the issues related with the time (and its explanatory factors) that university graduates take in order to enter the labour market and obtain a job.

Finnie (1999) is a significant study as it distinguishes the various specific levels of education, i.e. college, bachelor, master and doctorate graduates (in Canada throughout the 1980s). Of particular interest is the finding that the transition from school to work (in every level of education) is a process rather than an event, which means in the case under study that most of the initially unemployed managed to find jobs, the proportion of workers in temporary jobs sharply declined, and that mean earnings rose substantially. Despite the importance of dynamics, another interesting finding is that the process of transition from school to work did not generally change substantially across cohorts. In what

concerns the patterns by gender, many of the outcomes differed for men and women, such as women having higher rates of part-time work and lower earnings than men, and the gender earnings gap widening over the two- to five-year interview interval. On the other hand, some of the more important gender differences narrowed considerably from the first cohort to the third, including a steady, significant narrowing in the earnings gap between male and female graduates at all levels.

Biggeri et al. (2001), considering the case of Italy (1992 and 1995), use a three-level discrete time survival model in order to analyse the time to obtain the first job by graduates taking into account not only the graduates' characteristics but also the characteristics of universities and course programmes. The authors conclude that the variability of the success in obtaining the first job depends much more on the course programmes than on the universities. In what concerns the characteristics of the graduates, the authors find out that: the military service is relevant in explaining the male pattern; the estimated hazard functions for females and males without military service have similar shapes although at a higher level for males – this gender difference in favour of males is more pronounced for those graduates with lower final marks; that the final mark has a slightly positive effect on the probability of obtaining a job in a certain time; that students that take less time to graduate also take less time to obtain a job; that the occupational status and education level of the parents exert a significant effect; and that graduates with a previous working experience are more likely to obtain a job but also that mature graduates seem to be in a disadvantageous situation in relation to younger graduates.

Quintano et al. (2004) consider the case of the graduates in Economics at the University of Naples "Parthenope".[2] Through the use of a multinomial logit model the authors do not find neither a gender nor a parents' professional condition effect but rather a strong cohort effect, which is compatible with the (expected) result that the entrance of the graduates in labour market increases as years from graduation increase.[3] The case of business and management graduates in the UK is studied in Wilton (2008) who considers, in particular, the relationship between skills developed on undergraduate programmes and those subsequently used in employment, particularly in managerial careers.

The focus of van der Klaauw et al. (2005) is the process of job search that graduates undertake, sometimes even before the graduation date (see also Bowlus et al., 2001; Ferrall, 1997; and Wolpin, 1987). By the use of a discrete-time job search model, the authors' main finding relates to the common

[2] Despite being evident some similarities in terms of the weaknesses and difficulties of the labour market between the areas of major influence of this university and the University of Évora, i.e. both are located in areas characterised by unemployment rates above the national level, the fact is that, in relative terms, the diffusion of the graduates throughout the national territory is higher in the case of the University of Évora.

[3] As an aside result, Quintano et al. (2004) conclude that the probability of being unemployment is highly dependent upon the duration of the university degree.

fact that a great share of graduates starts working immediately after the graduation, which is explained by a job search initiated before leaving the university.

Jaunky & Khadaroo (2007) analyse the case of the graduates from the University of Mauritius during the period 1995-2000. Quite interestingly the authors show that the job search time, which is not significantly different among males and females, is directly related to the age of the graduate and to the education of the graduate's father whereas is indirectly related to the education of the graduate's mother and to postgraduate training. Moreover, the place of residence seems to matter as graduates from urban areas have a lower job search time than their rural counterparts.

Vanoverberghe et al. (2008) consider a duration model using data on Flemish school leavers. The speed of the transition process from the school-leaving date and the start of the first job is found to be a function of three kind of factors: (a) those that are controllable at relatively low cost, such as search intensity, (b) those that are manageable at large investments cost, such as the level of education, and (c) those that are outside of control, such as ethnicity.

The Italian case is again considered in Pozzoli (2009) by the use of non parametric discrete-time single risk models to study employment hazard. The results indicate that, after a short initial period of negative duration dependence, there is a general evidence of true positive duration dependence, this being explained by the fact that graduates, as time goes by, become less selective as well as adjust their search effort and methods during the unemployment spell, which allows also for an increase in the level of information about job opportunities. With regards to the effects of covariates, older and female graduates, those who graduated in Humanities and Social Sciences, those who have parents with the lowest level of education and finally those who live in Southern and Central Italy are found to have particularly lower hazard of getting their first job.

3. Data and Methodology

3.1. The data

The University of Évora is a public institution of higher education whose origins date back to 1559. After being closed in the 18th century, the university reopened in 1979. At the present time, it is organized in departments which are grouped in three schools: (i) arts; (ii) social sciences; (iii) technological sciences. The São João de Deus School of Nursing, a public polytechnic institute of higher education, became part of the University of Évora in 2004.

The University of Évora has around 5760 students enrolled in graduate courses, 1588 in Master's courses and 277 in PhD courses. Moreover, it has a teaching staff of 577, of whom more than half hold a PhD degree, and an administrative staff of 406.

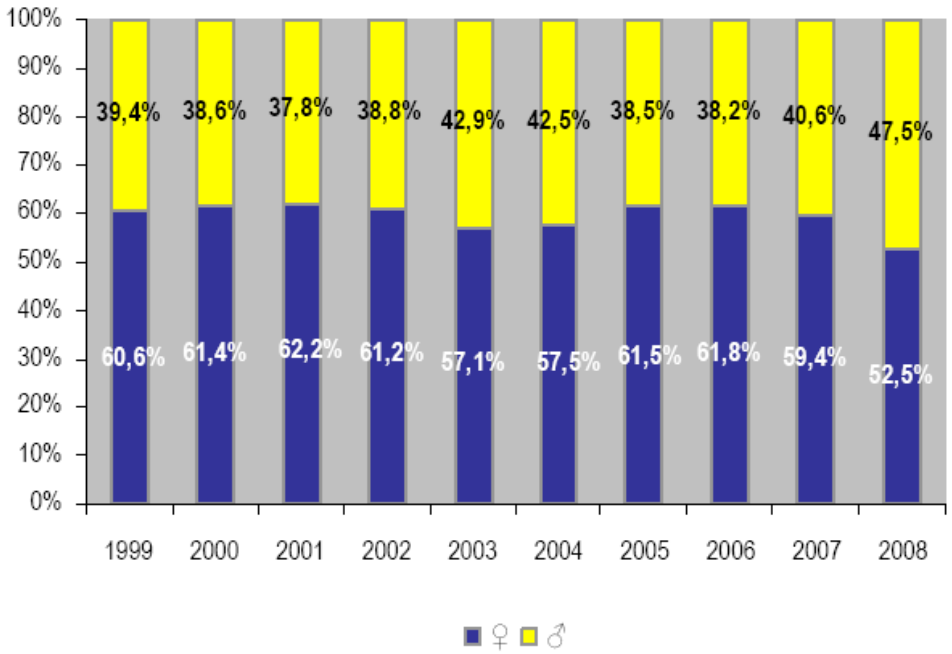

Figure 1: The share of students in the University of Évora by gender

In what concerns the graduate students, in accordance to the general figures of the higher education in Portugal, females represent a greater share than males. See figure 1, whose source is Pró-Reitoria para a Política da Qualidade e da Inovação (2008: 76).

In what concerns the areas of study, in general, engineering is mostly attended by male students whereas areas such as education are mostly attended by female students (see Pró-Reitoria para a Política da Qualidade e da Inovação, 2008: 77).

Most of the students are under 20 years despite being also evident an increase in the proportion of older students (over 30), in particular in the most recent years.

In terms of the geographical origin of the students, the University of Évora attracts students essentially from the district of Évora (around 36%), as well as from the surrounding districts (of Alentejo). The Lisbon district also represents a relevant area of origin (around 10%). See Pró-Reitoria para a Política da Qualidade e da Inovação (2008: 82).

Table 1: Descriptive Statistics

	Arts and Humanities	Engineering	Scientific	Economics and Management	Other Social Sciences
Number of observations	143	183	214	143	87
% Search duration <= 6 months	76%	77%	75%	86%	69%
age	25.52 (5.52)	26.69 (3.50)	24.86 (3.45)	23.85 (2.90)	24.57 (4.41)
male==1	0.124 (0.33)	0.432 (0.497)	0.242 (0.429)	0.458 (0.50)	0.205 (0.406)
Final Mark	13.94 (1.06)	13.15 (1.02)	14.25 (0.98)	12.42 (1.23)	13.50 (1.17)
Course duration above average=1	0.497 (0.50)	0.454 (0.499)	0.149 (0.357)	0.306 (0.46)	0.227 (0.421)
Search in Alentejo=1	0.745 (0.44)	0.622 (0.486)	0.674 (0.47)	0.667 (0.473)	0.784 (0.414)
year 2000=1	0.1103 (0.31)	0.141 (0.348)	0.121 (0.33)	0.167 (0.374)	0.205 (0.406)
year 2001=1	0.172 (0.38)	0.157 (0.365)	0.112 (0.32)	0.201 (0.402)	0.125 (0.333)
year 2002=1	0.186 (0.39)	0.232 (0.42)	0.191 (0.39)	0.194 (0.397)	0.091 (0.289)
year 2003=1	0.221 (0.416)	0.228 (0.42)	0.298 (0.46)	0.229 (0.422)	0.307 (0.464)
year 2004=1	0.310 (0.46)	0.243 (0.43)	0.279 (0.45)	0.208 (0.408)	0.273 (0.448)

Note: Unless otherwise indicated the values presented refer to sample averages and standard deviations are reported in parentheses

Our data is from a survey of individuals who completed undergraduate education in the University of Évora. The survey is a written questionnaire which contains questions on University education, job search behaviour, work history and personal characteristics. However, does not include information on the family background and no information prior to the students' entry in the University.

In our paper we focus on the students who have completed their first degree between 2000 and 2004, in the several courses degrees in the University of Évora. Since our model describes individuals who enter the labour market for the first time, we exclude individuals who were working before graduation. Our sample thus comprises a total of 767 students.

The sample employed in the analysis has several fields of study which we have further grouped into 5 main categories[4]: Scientific, Engineering, Arts and Humanities, Economics and Management, Other Social Sciences. From table 1 we can see that graduates in Arts and Humanities and Economics and Management each represent nearly 19% of the whole sample, while graduates in Scientific areas constitute about 28%. Those graduating in Engineering subjects represent nearly 24%. Finally, those who graduated in Social sciences consist of only 11,2% of the all sample.

Most of the students in the sample are female students, especially in Arts, humanities and social sciences, which is accordance to what we should expect. In all course categories, the majority of students find a job within a period of six months, with Economics and Management displaying the highest rate (86%).

The average final mark is very similar for all course categories, but those in scientific areas display higher final marks in average. These are also the ones that present a smaller percentage of students with a course duration above average (only about 15%, in opposition to almost 50% in Arts and Humanities). Finally, as the University attracts most of its students in the Alentejo region, it is not surprising that the majority of those in our sample search for a job in the Alentejo.

3.2. The econometric methodology

Theoretically, the duration variable of interest (time to obtain the first job) is a continuous random variable. However, as often occurs in many empirical studies, in our case the duration variable is measured in groups of months[5]. Therefore, the appropriate approach for modelling the duration is a discrete-time hazard model (grouped interval data). Several specifications can be used to estimate a discrete-time hazard model. A popular and convenient formulation is to consider a complementary log-log model, which can be interpreted as the discrete time model corresponding to an underlying continuous time Proportional Hazards model. Representing discrete times (durations) by t_j, the hazard function is given by:

$$h\ (t_j \mid x) = 1 - \exp(-\exp[\gamma(t_j) + x^{'}\beta])$$

where $\gamma(t_j)$ corresponds to the baseline hazard and x is a vector of explanatory variables.

[4]The grouping in particular is the following: Scientific (Physics, Chemistry, Biology, Agricultural, Maths, Veterinary Medicine); Engineering (Engineering, Architecture); Arts and Humanities (Theatre, Music, Philosophy, Literature, Foreign Languages, Education); Economics and Management (Economics and Management); Other Social Sciences (Sociology, History and Psychology).

[5] More specifically the following intervals are considered: 0 months, 0 to 1 month, 2 to 6 months, 7 to 12 months, more than 12 months.

Another possible specification is to consider a discrete time logistic model, which can be interpreted as a proportional odds model. The logistic model approximates a proportional model quite closely if the hazard is sufficiently small. In this specification, the hazard function is given by:

$$h(t_j \mid x) = [1 + \exp(-\gamma(t_j) - x'\beta)]^{-1}$$

again, $\gamma(t_j)$ corresponds to the baseline hazard and x to the vector of explanatory variables.

In both models, the baseline hazard can be specified following a parametric approach, assuming a specific form for the hazard function, or a semi-parametric approach, where there is no assumption about its shape. In this paper, in order to check for the robustness of the results, we consider both a parametric specification (cubic-polynomial) and a semi-parametric specification (piecewise constant).

Supposing d_i =1 if there is no censoring (that is if the student *i* made a transition into work within the period of observation) and di=0 if there is censoring, the corresponding likelihood, is given by:.

$$L = \prod_{i=1}^{N} [S(ti + h \mid x_i)^{1-d_i} [h(ti + si \mid x_i) S(ti + si \mid x_i)]^{di}$$

where $S(ti + h \mid x_i)$ represents the survivor function, measuring the probability of no transition in the interval (t, t+h), and $h(ti + si \mid x_i) S(ti + si \mid x_i)$ is the probability that the student exits unemployment at t+s (0<s<h).

Alternatively, one can consider each survival or exit in each interval as an observation. Then, each student in the sample contributes with *si* "observations", leading to a sample size of $\Sigma_i s_i$. Indexing these observations by *k* and considering y_{ik} as one if the spell was completed in the interval (that is if student *i* made a transition into work) and as zero if not, one can rewrite the likelihood function as:

$$L = \prod_{i=1}^{N} \prod_{k=ti}^{ti+si} [h_i(k \mid x_i)^{y_{ik}} [1 - h_i(k \mid x_i)]$$

This form of the likelihood is exactly the form of the likelihood for a discrete-choice model. Therefore, one can easily estimate the parameters of the model with several software packages available, by rearranging the data in a proper way[6].

We are aware of possible existence of student specific unobserved characteristics, which may affect the duration of unemployment. Not controlling for unobserved heterogeneity could result in inconsistent and downward biased estimates of the covariates' coefficients as well as in over-estimation of the degree of negative duration dependence, or under-estimation of the degree of positive duration dependence (Lancaster, 1990; van den Berg, 2001; Ridder ,1987). Therefore, we also estimate the previous discrete time models considering the existence of unobserved heterogeneity. The most common method to deal with the problem of unobserved heterogeneity is to assume that the effect of omitted variables can be represented by a random disturbance. Following this approach, the complementary log-log model generalises to:

$$h\ (t_j \mid x) = 1 - \exp(-\exp[\gamma(t_j) + x'\beta + u])$$

The logistic hazard regression model can be generalised in a similar way:

$$h(t_j \mid x) = [1 + \exp(-(\gamma(t_j) + x'\beta + e))]^{-1}$$

where the 'error' term *e (*and *u)* represents the unobserved heterogeneity and is a random variable with mean zero and finite variance. In practice, the problem lies on the choice of the distribution of the random variable. In principle, any continuous distribution with positive support, mean one and finite variance, is a suitable choice. However, the choice of the distribution is limited to those that give a closed form expression for the survivor function. For the *discrete time* Proportional hazard model, the Gamma distribution has been the most used distribution. For these models it also straightforward to assume a Normal (Gaussian) distribution for *u* and *e*, respectively. In this work we assume a Normal (Gaussian) distribution.

There has been much discussion in the literature about the extent of the effects of unobserved heterogeneity. In particular, the literature has focused on the choice of shape of the hazard function and on the choice of the distribution for the unobserved heterogeneity. The results from several papers (for example, Dolton & van der Klaauw (1995), Meyer (1990) and Trussell & Richards (1985)) have suggested that if a flexible specification for the baseline hazard function is used (like the

[6] See Jenkins (1995) for details on the organization of the data and on the estimation of these models.

piecewise constant that we use in this paper), then the magnitude of the biases in the non-heterogeneity model are reduced.

4. Results

Table 2 and 3 display the estimates for the different specifications of the hazard function, with and without control for unobserved heterogeneity, respectively. The results reveal the existence of significant unobserved heterogeneity in both the discrete time logistic and the complementary log-log models. The differences in the coefficient estimates between the specifications with no control for heterogeneity and those controlling for heterogeneity are more obvious in the case of the parametric approach (polynomial) and especially for the complementary log-log model. Nevertheless, in all specifications the sign and significance of the explanatory variables remains equal. Moreover, the coefficient estimates are quite stable for the two specifications of the baseline hazard (piece-wise constant and polynomial), which points to the robustness of our results.

The baseline hazards considering the existence of heterogeneity are fairly similar to the ones without unobserved heterogeneity, for both the polynomial and the piecewise constant specifications. In all cases, the shape of the baseline hazard follows a similar pattern. We conclude that an initial period of positive dependence is followed by the negative dependence, indicating that after a few months it becomes more difficult for students to find a job as time goes by.

In what concerns the effects of the explanatory variables, our results show the existence of significant differences among the several subject areas of graduation, with Economics, Management and Engineering being the most successful subjects. On the contrary, students in Arts and Humanities seem to be in worst situation to find a job.

As expected, the results highlight the importance of the final mark students obtain in the course to their success in the labour market: a high final mark has a positive and significant effect on the probability of exiting unemployment. However, the time to graduate does not seem to affect the probability of finding a job, as the variable "course duration above average" does not display a significant effect in any of the specifications.

Young graduates seem to be in a disadvantageous situation in relation to more mature graduates. This may be explained by the fact that older students signal themselves as more able to firms, due to higher maturity. On the other hand, it might be the case that younger students are more likely to be choosier with respect to job opportunities. We also do not find any statistically significant difference between male and female graduates.

These previous findings do not seem to be in accordance with previous studies, namely for Italy, which typically conclude that older graduates, female students and graduates with longer course durations seem to be in a weaker position. This divergence in the results might be a consequence of the differences in the labour market between the two countries.

Table 2: Hazard Functions Results – polynomial specification

	Logistic			**Complementary log-log**	
	no-heterogeneity	**heterogeneity-normal mixing**		**no-heterogeneity**	**heterogeneity-normal mixing**
Duration dependence:					
J	-6.797* (1.12)	-6.934* (1.147)		-5.274* (0.870)	-5.226* (1.113)
J^2	3.464* (0.49)	3.576* (0.509)		2.677* (0.377)	3.334* (0.532)
J^3	-0.482* (0.066)	-0.496* (0.068)		-0.371* (0.049)	-0.466* (0.071)
Constant	-0.778 (1.045)	-1.245 (1.135)		-0.844 (0.811)	-7.704* (2.638)
Age	0.034** (0.014)	0.041** (0.016)		0.022** (0.011)	0.110* (0.043)
male==1	0.105 (0.116)	0.113 (0.129)		0.094 (0.089)	0.305 (0.277)
Final Mark	0.229* (0.05)	0.251* (0.056)		0.176* (0.038)	0.423* (0.123)
Course duration above average=1	0.099 (0.126)	0.118 (0.140)		0.080 (0.097)	0.297 (0.267)
Search in Alentejo=1	-0.341* (0.111)	-0.383* (0.124)		-0.263* (0.085)	-0.778** (0.338)
arthum	-0.834* (0.193)	-0.917* (0.216)		-0.665* (0.149)	-1.632* (0.512)
Engineer	-0.190 (0.169)	-0.173 (0.188)		-0.207 (0.127)	-0.107 (0.360)
Scientific	-0.816* (0.181)	-0.889* (0.203)		-0.645* (0.139)	-1.550* (0.482)
Social	-0.710* (0.200)	-0.789* (0.225)		-0.544* (0.155)	-1.480* (0.514)
year 2000=1	0.759* (0.175)	0.834* (0.196)		0.589* (0.132)	1.413* (0.398)
year 2001=1	0.498* (0.169)	0.550* (0.188)		0.370* (0.129)	0.990** (0.447)
year 2002=1	0.185 (0.154)	0.201 (0.171)		0.149 (0.120)	0.370 (0.360)
year 2003=1	-0.243*** (0.141)	-0.274*** (0.157)		-0.195*** (0.112)	-0.580*** (0.311)
LR test: unobserved heterogeneity =0	-	χ^2 = 2.44***		-	χ^2 =16.54*
Log likelihood	-1136.544	-1135.322		-1139.533	-1131.264
N	2016	2016		2016	2016

Note: (*), (**), (***)- significant at 1%, 5% and 10%, respectively

Table 3: Hazard Functions Results – piecewise constant specification

	Logistic			Complementary log-log	
	no-heterogeneity	**heterogeneity-normal mixing**		**no-heterogeneity**	**heterogeneity-normal mixing**
Duration dependence:					
0 months	-0.701* (0.165)	-1.128* (0.198)		-0.551* (0.134)	-1.150* (0.178)
0 to 1 month	-0.462* (0.169)	-0.777* (0.190)		-0.367* (0.137)	-0.814* (0.164)
2 to 6 months	0.866* (0.170)	0.719* (0.180)		0.638* (0.129)	0.393* (0.141)
Constant	-3.707* (0.748)	-3.876* (0.845)		-3.190* (0.571)	-3.457* (0.705)
Age	0.030** (0.014)	0.038** (0.0160)		0.021** (0.011)	0.032** (0.014)
male==1	0.095 (0.114)	0.105 (0.129)		0.086 (0.089)	0.100 (0.109)
Final Mark	0.227* (0.050)	0.253* (0.056)		0.178* (0.038)	0.214* (0.047)
Course duration above average=1	0.087 (0.124)	0.107 (0.140)		0.074 (0.097)	0.102 (0.119)
Search in Alentejo=1	-0.351* (0.110)	-0.398* (0.124)		-0.274* (0.085)	-0.346* (0.105)
arthum	-0.849* (0.191)	-0.944* (0.216)		-0.680* (0.149)	-0.797* (0.182)
Engineer	-0.213 (0.167)	-0.193 (0.188)		-0.217*** (0.127)	-0.165 (0.157)
Scientific	-0.816* (0.179)	-0.902* (0.202)		-0.649* (0.138)	-0.762* (0.170)
Social	-0.693* (0.198)	-0.784* (0.225)		-0.540* (0.155)	-0.662* (0.190)
year 2000=1	0.696* (0.173)	0.787* (0.196)		0.546* (0.132)	0.671* (0.163)
year 2001=1	0.444* (0.167)	0.506* (0.188)		0.331** (0.129)	0.413* (0.158)
year 2002=1	0.128 (0.152)	0.150 (0.172)		0.101 (0.120)	0.125 (0.147)
year 2003=1	-0.301** (0.140)	-0.336** (0.158)		-0.248** (0.113)	-0.303** (0.136)
LR test: unobserved heterogeneity =0	-	χ^2 = 6.57*		-	χ^2 =18.85*
Log likelihood	-1172.5583	-1169.2716		-1174.1689	-1168.2457
N	2016	2016		2016	2016

Note: (*), (**), (***)- significant at 1%, 5% and 10%, respectively

It is also of interest to note that those students that search for a job in the Alentejo region are less successful on finding a job. This certainly is a consequence of the characteristics of the region, which displays an underdeveloped industrial structure and poor labour market conditions, with rates of

unemployment above the national ones (see, for example, the last figures for the regions of Portugal, published by the Eurostat,[7] which confirm the Alentejo as the Portuguese region with higher unemployment rates for 15-24 years old (20,7% in 2006 and 20,1% in 2007).

Finally, there are significant differences on the probability of leaving unemployment among the several years considered in the sample. This is a consequence of the differences in the labour market conditions in these years. In fact, in 2000 and 2001 the rate of unemployment was considerably lower than in following years. By 2002/2003 labour market conditions worsen considerably as a consequence of economic recession.

5. Conclusion

The relevance of the employability of the University graduates is increasing, following the recent developments in the higher education area and in the youth labour market, in Europe in general and particularly in Portugal. In fact, the implementation of the Bologna process, the assessment of the universities performance, in consequence of recent reforms of the university system, as well as the worsening of the labour market conditions, turned the analysis of graduates' success in a crucial issue.

In this paper, we analyse the transition to work of first degree students in a small University in Portugal, the University of Évora, using a sample of 767 students. The focus is on the time to obtain the first job, considering the graduates' characteristics and the effect of the field of study. We estimate several different specifications of discrete-time hazard models and the results are quite robust. The results reveal that there is evidence of negative duration dependence after an initial period of positive duration dependence. This indicates that, after a short period of time, the longer graduates stay unemployed, the less likely they find a job.

As for the effects of the explanatory variables, we conclude that there are significant differences among the several subject areas of graduation, with economics, management and engineering being the most successful subjects. Moreover, the final mark obtained in the course seems to be determinant to the students' success in the labour market. The results also reveal that younger graduates seem to be in a disadvantageous situation in relation to more mature graduates, but that there are no significant differences between male and female students. It is also obvious the regional influence in the probability of finding a job, as students that search in the Alentejo region take longer to find a job.

[7] Available at http://europa.eu/rapid/pressReleasesAction.do?reference=STAT/09/20&format=HTML&aged=0&language=EN&guiLanguage=fr

Some of our results are not in accordance to previous findings in similar studies for other countries, like Italy. Therefore, it seems there may be important differences among the countries on the graduates' process to find their first job that should be further analysed.

In the particular case of Portugal, future research should also analyse the graduates' success in other Universities, both small and large Universities, in order to better understand the process of transition into the labour market for first degree graduates. As a matter of fact, a better understanding of that process also requires that the geographical (i.e. by regions) localisation of the universities must not be ignored. Besides, other measures of graduates' success should be considered, like the type of job graduates find or the wage levels.

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Appendix - Variables Definition

Age	age in years at the time of graduation
Male	dummy variable. Equal one if student is male
Final Mark	Finale course mark of the student at graduation (between 10 and 20)
Course duration above average	dummy variable. Equals one if the time to graduate is longer than average in each course.
Search in Alentejo	dummy variable. Equal one if the student search for a job in the Alentejo region
Arthum	dummy variable. Equal one if the course is in Arts or Humanities
Engineering	dummy variable. Equal one if the course is in Engineering or Architecture
Scientific	dummy variable. Equal one if the course is in Scientific areas
Economics and Management	dummy variable. Equal one if the course is in Economics or Management. (this is the reference category)
Social Sciences	dummy variable. Equal one if the course is in Social Sciences
year 200j **j=1,2,3,4**	dummy variable. Equal one if the student graduates at year j. 2004 is the reference category